DEPARTMENT OF ENVIRONMENTAL CONSERVATION

AIR QUALITY CONTROL MINOR PERMIT

Permit No.: AQ0741MSS01, Revision 2 **Date: Final – January 11, 2008**
Rescinds Permit No. AQ0741MSS01

The Alaska Department of Environmental Conservation (Department), under the authority of AS 46.14 and 18 AAC 50, issues Air Quality Control Minor Permit No. AQ0741MSS01, Revision 2 to the Permittee listed below.

Permittee:	**Pacific Energy Resource Ltd.** 310 K Street, Suite 700 Anchorage, AK 99501
Owner:	Same as Permittee
Operator:	Same as Permittee
Stationary Source:	Kustatan Production Facility[1]
Location:	Latitude 60° 43' 28" N, Longitude 151° 45' 36" W
Physical Address:	West Foreland, Cook Inlet, Alaska
Permit Contact:	Bob Elder, (907) 868-2139

This permit is issued under 18 AAC 50.508(6) since the Permittee is requesting to revise terms and conditions for an existing permit. This permit authorizes the Permittee to operate the stationary source in accordance with the terms and conditions of this permit, and as described in the original permit application and subsequent application supplements listed in Section 7 except as specified in this permit.

This permit satisfies the obligation of the Permittee to obtain a minor permit under these provisions. As required by AS 46.14.120(c), the Permittee shall comply with the terms and conditions of this minor permit.

John F. Kuterbach
Manager, Air Permits Program

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[1] As described on the cover page of Permit No. AQ0741TVP01, the Kustatan Production Facility and the Osprey Platform (Stationary Source ID 696) are considered a single stationary source (referred to as the West Forelands Facility) for the purpose of permit applicability under 18 AAC 50.306(b).

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Abbreviations/Acronyms

AAC ..... Alaska Administrative Code
ADEC or the Department ..... Alaska Department of Environmental Conservation
AS ..... Alaska Statutes
ASTM ..... American Society of Testing and Materials
CFR ..... Code of Federal Regulations
dscf ..... Dry standard cubic feet
EPA ..... US Environmental Protection Agency
EU ..... Emission unit
gr/dscf ..... grain per dry standard cubic feet (1 pound = 7000 grains)
hp ..... horsepower
kW ..... kiloWatts
MMBtu/hr ..... million British thermal units per hour
MMscf ..... million standard cubic feet
MW ..... MegaWatts
ppm ..... Parts per million
PSD ..... Prevention of Significant Deterioration
tpy ..... Tons per year

Pollutants

SO_2 ..... Sulfur dioxide
CO ..... Carbon monoxide
SO_2 ..... Sulfur dioxide
VOC ..... Volatile organic compounds [as defined in 18 AAC 50.990(103)]
NO_X ..... Nitrogen oxides
PM-10 ..... Particulate Matter of size less than 10 micrometers

Section 1 Emission Unit Inventory

1. **Authorization.** The Permittee is authorized to install and operate the emission units listed in Table 1 in accordance with the terms and conditions of this permit and the minor permit application.

Table 1. Emission Unit Inventory

EU	EU ID	EU Name	EU Description	Fuel Used	Rating[a]
		Turbine Generators			
1	G-157A	Turbine Generator # 1	Taurus 60-T7300S	Lean fuel gas	5.652 MW
2	G-157B	Turbine Generator # 2	Taurus 60-T7300S	Lean fuel gas	5.652 MW
2a	G-157C	Turbine Generator # 3	Taurus 60-T7300S	Lean fuel gas	5.652 MW
		Heaters			
3	V-115A	Heater Treater # 1	NATCO Natural Draft Burners	Raw fuel gas	6.2 MMBtu/hr
4	V-115B	Heater Treater # 2	NATCO Natural Draft Burners	Raw fuel gas	6.2 MMBtu/hr
5	V-115C	Heater Treater # 3	NATCO Natural Draft Burners	Raw fuel gas	6.2 MMBtu/hr
6	H-112A	Crude Heater # 1	NATCO Natural Draft Burners	Raw fuel gas	8 MMBtu/hr
7	H-112B	Crude Heater # 2	NATCO Natural Draft Burners	Raw fuel gas	8 MMBtu/hr
8	H-112C	Crude Heater # 3	NATCO Natural Draft Burners	Raw fuel gas	8 MMBtu/hr
		Diesel Engines			
9	P-115	Fire Water Pump		Diesel fuel	200 hp
9a		Backup Generator		Diesel fuel	320 kW
		Miscellaneous Equipment			
10a	H-100	Small Space Heaters		Diesel Fuel	0.5 MMBtu/hr
10	H-150	Process Flare		Raw fuel gas	0.8 MMBtu/hr
		Storage Tanks			
12	T-133	Crude Oil Tank # 1	Fixed Roof		10,000 bbl
13	T-134	Crude Oil Tank # 2	Fixed Roof		10,000 bbl
14	T-135	Crude Oil Tank # 3	Fixed Roof		10,000 bbl
15	T-140	Slop Oil Tank			10,000 bbl
16	T-142	Produced Water Tank			10,000 bbl
	T-146	Utility Tank			500 bbl
	T-156	Small Diesel Tank			5,000 gal

[a] MW means MegaWatts, kW means kiloWatts, hp means horsepower, bbl means barrels, MMBtu/hr means million British thermal units per hour, gal means gallons, and EU means emission unit.

Section 2 Ambient Air Quality Standards and Increments

2. Ambient air quality standards compliance for the stationary source operation is demonstrated at the posted boundary specified in PERL's Access Control Plan set out in Section 8. Establish and maintain ambient air boundaries as described in Section 8.

3. Sulfur Dioxide Requirements.

   3.1 Limit the fuel sulfur content of the liquid fuels burned at the Kustatan Production Facility to no greater than 0.5 percent by weight.

      3.1.1 If the fuel grade requires a sulfur content less than 0.5 percent by weight, keep receipts that specify fuel grade and amount; or

      3.1.2 If the fuel grade does not require a sulfur content less than 0.5 percent by weight, keep receipts that specify fuel grade and amount and

         3.1.2.1 test the fuel for sulfur content of each shipment; or

         3.1.2.2 obtain test results showing the sulfur content of the fuel from the supplier or refinery; the test results must include a statement signed by the supplier or refinery of what fuel they represent.

      3.1.3 Fuel testing under condition 3.1.2.1must follow an appropriate method listed in 18 AAC 50.035 or another method approved in writing by the Department.

   3.2 Report in the operating report required in Permit No. AQ0741TVP01 a list of the fuel grades received at the stationary source during the reporting period.

Section 3 Limits to Avoid Classification as PSD Major Source

4. **Oxides of Nitrogen (NO_X) Emissions Limits**

4.1 Limit NO_X emissions from EU 1, 2 and 2a as follows:

4.1.1 Install "SoLoNO$_x$" low NO_X combustion technology;

4.1.2 Limit combined NO_X emissions from EUs 1, 2 and 2a to no greater than 55 tons per 12-month rolling period, expressed as NO_2.

4.2 Monitoring and Recording for EUs 1, 2, and 2a:

4.2.1 Calculate and record the NO_X emissions, expressed as Nitrogen Dioxide (NO_2) for each monthly period and 12 month rolling period using hours of operation and the following emission factors[2]:

a 4.7 lb/hr for EU 1;

b 6.2 lb/hr for EU 2; and

c 9.8 lb/hr for EU 2a.

4.2.2 Verify NO_X emission factors from source testing required in Operating Permit No. AQ0741TVP01. Use exhaust properties determined by either 40 CFR 60 Appendix A, Method 19 or Method 1-4, for each load tested. If using Method 19, then use the higher heating value throughout the analysis.

4.2.3 In the first operating report due after the Department approval of the source test results, calculate and report the NO_X emissions using the worst case emission factor for each of the EUs at worst case operation based on source test results.

4.3 Report the cumulative total monthly and 12-month rolling NO_X emission rates, expressed as NO_2, from EUs 1, 2 and 2a in the operating report as described in Permit No. AQ0741TVP01.

4.4 Limit operations of EU 9a to no more than 500 hours per 12-month rolling period.

4.5 Monitor and record the hours of operation of EU 9a for each calendar month.

4.6 Report the cumulative total monthly and 12 month rolling hours of operation of EU 9a in the operating report required in Permit No. AQ0741TVP01.

5. **Carbon Monoxide (CO) Emissions Limits**

5.1 For EUs 1, 2 and 2a, limit combined total CO emissions to less than 136 tons per 12-month rolling period.

5.2 For EU 10, limit the fuel gas burned to no more than 70 MMscf in any 12-month rolling period.

[2] Emission factors are from most recent source test plus 10% to adjust for load and temperature

5.3 Operate EUs 1, 2 and 2a at all times, except at startup, shutdown, and performance and emission tests at no less than the lower of either 50% load or the minimum load for which CO emission source tests were conducted.

5.4 Monitoring and Recording for Units 1, 2 and 2a:

5.4.1 Verify CO emission factors from source testing required in Operating Permit No. AQ0741TVP01. Use exhaust properties determined by either Method 19 or Method 1-4, for each load tested. If using Method 19, then use the higher heating value throughout the analysis.

5.4.2 If the combined emission factors for EUs 1, 2 and 2a for worst case operation exceed 31 lb/hr[3], calculate and record the CO emissions for each month and 12 month rolling period for the period preceding submission of the source test results. Use hours of operation and the worst case emission factor for each unit in the calculations.

5.4.3 For each of EUs 1, 2 and 2a, monitor the date, time, duration and reason for all operations less than the load listed in Condition 5.3.

5.5 Monitor the fuel gas burned in EU 10 for each calendar month. Use flow meters and totalizers accurate to ±10%. Calculate and record the 12-month rolling fuel gas burned for each month of the reporting period, by the end of the following month.

5.6 Report in the operating report described in Permit No. AQ0741TVP01 for each month of the reporting period:

5.6.1 The cumulative 12-month rolling CO emission from EUs 1, 2, and 2a recorded in Condition 5.4.2 .The Permittee is exempt from reporting CO emissions prior to submission of source test results.

5.6.2 The 12-month rolling fuel gas burned in EU 10 recorded in Condition 5.5.

6. Volatile Organic Compounds (VOC) Emission Limits

6.1 Equip the crude tanks, slop oil tank and produced water tank, EUs 12 through 16, with a closed vent system and control device meeting the following specifications:

6.1.1 The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions;

6.1.2 The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater.

[3] Combined emission factor of 31 lb/hr for units 1, 2 and 2a is equivalent to 136 tpy of unlimited operations.

Section 4 Federal Standards Adopted by Reference

7. Comply with 40 CFR 60, Subpart A requirements as listed Operating Permit No. AQ0741TVP01 for the following:

   7.1 Startup, Shutdown and Malfunction Requirements. The Permittee shall maintain records for EUs 1, 2 and 2a in accordance with 40 CFR 60.7(b).

   7.2 Good Air Pollution Control Practice. The Permittee shall maintain and operate EUs 1, 2 and 2a in accordance with 40 CFR 60.11(d).

   7.3 Credible Evidence. The credible evidence rule of 40 60.11(g) applies to EUs 1, 2 and 2a.

   7.4 Concealment of Emissions. The Permittee shall not conceal emissions from EUs 1, 2 and 2a as provided in 40 CFR 60.12. Monitoring shall consist of an annual certification that the Permittee does not conceal emissions.

8. 40 CFR 60, Subpart GG, EUs 1, 2 and 2a:

   8.1 NO_X Standard - The Permittee shall not allow the corrected exhaust gas concentration of NO_X from units 1, 2 and 2a to exceed the standard found in 40 CFR 60.332(a)(2). Based on the provisions of the standard, the corrected exhaust gas NO_X standards for EUs 1, 2 and 2a is 173.6 ppmv at 15 percent O_2, ISO.

   8.2 Monitor Record and Report for compliance with the NO_X standard for the GG turbines as described in Condition 16 of the Operating Permit No. AQ0741TVP01.

   8.3 Sulfur Standard - The Permittee shall not allow the sulfur content of the fuel burned in EUs 1, 2 and 2a to exceed 0.8 percent by weight.

Section 5 State Emission Standards

Visible Emissions

9. The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from EUs 1, 2, 2a, 3, 4, 5, 6, 7, 8, 9, 9a, 10 and 10a listed in Section 1, to reduce visibility through the exhaust effluent by any of the following:

    a more than 20 percent for a total of more than three minutes in any one hour[4];

    b more than 20 percent averaged over any six consecutive minutes[5];

    9.1 Monitor record and report for compliance with visible emissions standards, as described in Conditions 3.1, 3.2 and 3.3 of Permit No. AQ0741TVP01.

Particulate Matter

10. The Permittee shall not cause or allow particulate matter emitted from EUs 1, 2, 2a, 3, 4, 5, 6, 7, 8, 9, 9a, 10 and 10a listed in Section 1 to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours in compliance with 18 AAC 50.055(b)(1).

    10.1 Monitor record and report for compliance with grain loading standards, as described in Condition 4.1 and 4.2 of Permit No. AQ0741TVP01.

Sulfur Compound Emissions

11. The Permittee shall not cause or allow sulfur compound emissions, expressed as SO_2, from EUs 1, 2, 2a, 3, 4, 5, 6, 7, 8, 9, 9a, 10 and 10a listed in Section 1 to exceed 500 ppm averaged over three hours.

    11.1 Monitor, record and report as described in Conditions 5.1 through 5.10 of Operating Permit No. AQ0741TVP01.

[4] For purposes of this permit, the "more than three minutes in any one hour" criterion in this condition will no longer be effective when the Air Quality Control (18 AAC 50) regulation package effective 5/03/02 is adopted by the U.S. EPA.

[5] The six-minute average standard is enforced only by the state until 18 AAC 50.055(a)(1), dated May 3, 2002, is approved by EPA into the SIP at which time this standard becomes federally enforceable.

Section 6 Terms to make Permit Enforceable

12. The Permittee must comply with each permit term and condition. Noncompliance with a permit term or condition constitutes a violation of AS 46.14, 18 AAC 50, and, except for those terms or conditions designated in the permit as not federally enforceable, the Clean Air Act, and is grounds for

    12.1 an enforcement action; or

    12.2 permit termination, revocation and reissuance, or modification in accordance with AS 46.14.280.

13. It is not a defense in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with a permit term or condition.

14. Each permit term and condition is independent of the permit as a whole and remains valid regardless of a challenge to any other part of the permit.

15. The permit may be modified, reopened, revoked and reissued, or terminated for cause. A request by the Permittee for modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

16. The permit does not convey any property rights of any sort, nor any exclusive privilege

17. The Permittee shall allow the Department or an inspector authorized by the Department, upon presentation of credentials and at reasonable times with the consent of the owner or operator to

    17.1 enter upon the premises where an emission unit subject to the permit is located or where records required by the permit are kept;

    17.2 have access to and copy any records required by the permit;

    17.3 inspect any stationary source, equipment, practices, or operations regulated by or referenced in the permit; and

    17.4 sample or monitor substances or parameters to assure compliance with the permit or other applicable requirements.

Section 7 Permit Documentation

December 4, 2007	Letter from Forest Oil to the Department. Request to administratively revise Minor Permit AQ0741MSS01 for transfer of ownership.
July 12, 2007	Letter from Forest Oil to the Department. Request to administratively revise Minor Permit AQ0741MSS01.
May 22, 2007	Comments from Forest Oil to the Preliminary Permit.
April 4, 2007	e-mail to Alan Schuler: Supplemental modeling information.
March 28, 2007	e-mail to Alan Schuler: Supplemental modeling information.
March 14, 2007	e-mail from Al Trbovich (Hoefler Consulting) to Alan Schuler: Attached SO2 Q-D Analysis and Modeling Results Summary.
March 2, 2007	e-mail from JR Wilcox to Zeena Siddeek: Revisions to emissions calculations to reflect change of ORL for flare.
February 22, 2007	e-mail from JR Wilcox to Zeena Siddeek: Revisions to emissions calculations.
February 15, 2007	e-mail to Alan Schuler: Modeling assessment.
February 9, 2007	e-mail from JR Wilcox to Zeena Siddeek: Revisions to permit application.
February 6, 2007	e-mail from JR Wilcox to Zeena Siddeek: Attached vendor data for new emergency generator.
February 1, 2007	e-mail from JR Wilcox to Zeena Siddeek: Revisions to permit application.
January 17, 2007	e-mail from JR Wilcox to Zeena Siddeek pertaining to aggregation information of Kustatan and Osprey.
January 5, 2007	e-mail from JR Wilcox to Zeena Siddeek: Revisions to permit application.
December 28, 2006	e-mail from JR Wilcox to Zeena Siddeek: Revisions to Owner Requested Limits with attached turbine operation data.
November 1, 2006	Permit application from Forest Oil with Request to Amend Permits 7410CP02 and 696CP03 for the Kustatan/Osprey Source, West Foreland.

Section 8 Kustatan Production Site Public Access Control Plan

Purpose

The purpose of this Public Access Control Plan for the Kustatan Production Site is to protect the general public from public health and safety hazards incident to the heavy industrial activity planned at the Pacific Energy Resource Ltd. (PERL) property on the West Foreland, Cook Inlet, Alaska. The planned activity involves exploratory drilling for potential petroleum production. PERL has established these reasonable restrictions on general public access to attain adequate protection of public health and welfare.

PERL is committed to fully and adequately protecting the health and safety of its work force by meeting or exceeding the standards for air exposure of the Occupational Safety and Health Administration (OSHA) and, where the general public has access, the National and Alaska Ambient Air Quality Standards (AAQS). A primary purpose of this plan is to delineate the area to be protected and controlled for occupational health and safety from the area that is subject to unrestricted, general public access where AAQS are applicable. A secondary purpose is to ensure that reasonable measures are in place to accomplish reasonable restrictions on public access. The boundary is reflected in Figure 1, the Ambient Air Boundary Map.

General Information

The Kustatan Production site is located on the West Foreland, Cook Inlet, Alaska. The site is on property owned by PERL. The nearest community to the site is Nikiski, approximately 9 kilometers to the east. Cook Inlet lies between the site and Nikiski. PERL's West McArthur River Unit Production Facilities are located approximately 8 kilometers north of the site.

Currently, the site is accessible only by helicopter and boat. Because the area is roadless, Cook Inlet is effective as a physical barrier to prevent public access. A second effective physical barrier is the steep, 150- to 200-foot high bluff that must be climbed to access the West Foreland.

PERL has constructed a private road from the company's West McArthur River Unit Production Facilities to the site. The public will not be allowed to use this road. As a practical matter, few people are traversing the area that will be impacted by the Kustatan Production Site. The few people that may be in the area would be primarily at the Kustatan Fish Camp. This camp is on property owned by PERL. This fish camp has a small boat dock but is officially off-limits to the general public. To be conservative, the fish camp is treated as accessible to the public for the purposes of this plan.

In addition to the physical barrier cited above, public access to the site will be restricted using strategically located signs. These signs will be posted at the fish camp boat dock, the trail leading from the fish camp to the top of the bluff, and at the point the PERL road enter the site.

Public Access Control Measures

The area surrounding the Kustatan Production site is remote, isolated, and physically prohibitive to travel. PERL owns the area within the ambient air quality boundary and has the legal right to restrict public access. No established trails or cabin sites exist within the restricted area. In addition, no public need or use exists for the land within the restricted area. Cook Inlet and high angle bluffs prohibit snowmobile and all-terrain vehicle travel. Walking is difficult, and in places, impossible.

Signs will be posted along the two theoretically potential access routes. These two routes are PERL's private access road from the West McArthur River Unit Production Facilities and the walking trail from the Kustatan fish camp to the top of the bluff. Three signs will be posted, one each at the:

- Fish camp boat dock;
- Point the foot trail to the top of the bluff exists the fish camp; and
- Point of entry to the site of the PERL road from the West McArthur River Unit Production Facilities.

The sign specifications are:

- Each sign will be 4 feet by 6 feet and will be mounted on posts
- Each sign will be inspected semi-annually and will be repaired or replaced, as necessary.
- Each sign will be free of visible obstructions.
- Each sign will read:

PERL PETROLEUM EXPLORATION AND PRODUCTION OPERATIONS

INDUSTRIAL AREA
DANGER
OIL PRODUCTION AND FLARING IN PROGRESS

NO UNAUTHORIZED VISITORS BEYOND THIS POINT